

WHAT IS CLAIMED IS:

1. A method of modulating expression of TERT from a TERT expression system that includes a TERT promoter and a GC Box-5 repressor binding site, said method comprising:
modulating TERT transcription repression by said GC-Box-5 repressor binding site.
2. The method according to Claim 1, wherein said expression system is present in a cell-free environment.
3. The method according to Claim 1, wherein said expression system is present inside of a cell.
4. The method according to Claim 1, wherein said expression system comprises a TERT genomic sequence.
5. The method according to Claim 1, wherein said method is a method of enhancing TERT expression.
6. The method according to Claim 5, wherein TERT expression is enhanced by inhibiting GC-Box 5 repression of TERT expression.
7. The method according to Claim 6, wherein said inhibiting is by contacting said expression system with an agent that at least decreases the transcription repression activity of said GC-Box 5 repressor binding site.
8. The method according to Claim 7, wherein said agent comprises a nucleic acid.

9. The method according to Claim 7, wherein said agent comprises a peptide or a protein.
10. The method according to Claim 7, wherein said agent is a small molecule.
11. A method for enhancing telomerase expression in a cell comprising a telomerase gene, said method comprising:
administering to said cell an effective amount of an agent that inhibits GC-Box 5 TERT transcription repression.
12. The method according to Claim 11, wherein said administering is *ex vivo*.
13. The method according to Claim 11, wherein said administering is *in vivo*.
14. The method according to Claim 11, wherein said method is a method for increasing the proliferative capacity of said cell.
15. The method according to Claim 11, wherein said method is a method for delaying senescence of said cell.
16. A method for enhancing telomerase expression in a mammal, said method comprising:
administering to said mammal an effective amount of an agent that inhibits GC-Box 5 repression of TERT transcription.
17. The method according to Claim 16, wherein said agent is an agent that at least decreases the transcription repression activity of said GC-Box 5 repressor binding site.
18. The method according to Claim 17, wherein said agent comprises a nucleic acid.

19. The method according to Claim 17, wherein said agent comprises a peptide or a protein.
20. The method according to Claim 17, wherein said agent is a small molecule.
21. The method according to Claim 16, wherein said method extends the lifespan of said mammal.
22. The method according to Claim 16, wherein said mammal is a human.
23. A method for decreasing telomerase expression in a cell comprising a telomerase gene, said method comprising:
administering to said cell an effective amount of an agent that enhances GC-Box 5 TERT transcription repression.
24. The method according to Claim 23, wherein said administering is *ex vivo*.
25. The method according to Claim 23, wherein said administering is *in vivo*.
26. The method according to Claim 23, wherein said method is a method for decreasing the proliferative capacity of said cell.
27. A method for decreasing telomerase expression in a mammal, said method comprising:
administering to said mammal an effective amount of an agent that enhances GC-Box 5 repression of TERT transcription.

28. The method according to Claim 25, wherein said agent is an agent that at least enhances the transcription repression activity of said GC-Box 5 repressor binding site.
29. The method according to Claim 28, wherein said agent comprises a nucleic acid.
30. The method according to Claim 28, wherein said agent comprises a peptide or a protein.
31. The method according to Claim 27, wherein said method is a method of treating a disease condition resulting from telomerase activity.
32. The method according to Claim 31, wherein said disease condition is characterized by abnormal cellular proliferation.
33. The method according to Claim 32, wherein said disease condition is cancer.
34. A nucleic acid present in other than its natural environment, wherein said nucleic acid has a nucleotide sequence that is the same as or substantially identical to the GC-Box 5 repressor binding site and said nucleic acid does not include the full minimal Tert promoter sequence.
35. The nucleic acid according to Claim 34, wherein said nucleic acid has a length ranging from about 1 to about 50 bases.
36. The nucleic acid according to Claim 34, wherein said nucleic acid is isolated
37. The nucleic acid according to Claim 34, wherein said nucleic acid has a sequence that is substantially the same as or identical to a sequence found in SEQ ID NO:01.

38. An isolated nucleic acid or mimetic thereof that hybridizes under stringent conditions to the nucleic acid according to Claims 34 to 37 or its complementary sequence, wherein said isolated nucleic acid does not include the full TERT minimal promoter sequence.
39. A construct comprising a nucleic acid according to Claims 34 to 38.
40. The construct according to Claim 39, wherein said construct comprises a TERT promoter.
41. The construct according to Claim 39, wherein said construct is an expression cassette.
42. A double stranded DNA decoy sequence comprising a GC-Box 5 repressor binding site.
43. The decoy according to Claim 42, wherein said decoy comprises a sequence of SEQ ID NO: 01.
44. The decoy according to Claim 42, wherein said decoy ranges in length from about 10 to about 50 bases.
45. A method of treatment comprising administering to cells a decoy according to Claim 42.
46. A method of determining whether an agent that inhibits GC-Box 5 repression of TERT transcription, said method comprising:
- (a) contacting said agent with an expression system comprising a GC-Box 5 repressor binding site and a coding sequence operably linked to a TERT promoter

under conditions such that in the absence of said agent transcription of said coding sequence is repressed;

(b) determining whether transcription of said coding sequence is repressed in the presence of said agent; and

(c) identifying said agent as an agent that inhibits GC-Box 5 repression of TERT transcription if transcription of said coding sequence is not repressed in the presence of said agent.

47. The method according to Claim 46, wherein said contacting step occurs in a cell-free environment.

48. The method according to Claim 46, wherein said contacting step occurs in a cell.

49. The method according to Claim 46, wherein said agent is a small molecule.

50. A mammalian cell comprising a telomerase gene modified by deletion of any of the nucleotides found in a GC-Box 5 repressor region.

51. The cell according to Claim 50, wherein said deletion is any of nucleotides found in a sequence of SEQ ID NO:01.

52. A method of producing a mammalian antibody, comprising the steps of:
isolating a B cell from a mammal, which B cell or its progeny cell is
characterized by producing an antibody of interest;

enhancing telomerase expression in said B cell by the method of Claim 11; and

growing the immortalized B cell and its progeny under conditions which allow the cells to produce the antibody of interest.